

DC Feedthrough Filters - Class Y4

# FFD Series



UL Pending  
CSA Pending

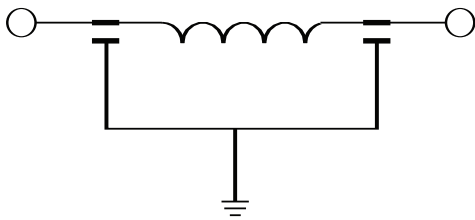
## FFD Series

The new FFD series features a range of DC feedthrough filters in current ratings from 10 to 200 amps. The FFD series is designed to meet the very stringent safety requirements of EN133200 class Y4 including the 2500V pulse test.

## Filter Options / Specifications

| Filter ID | Value (nF) | Inductance (nH) | DC Resistance (MΩ) Max. |
|-----------|------------|-----------------|-------------------------|
| CA        | 2 x 10     | 70              | 6                       |
| HB        | 2 x 100    | 80              | 3                       |
| HE        | 2 x 100    | 140             | 8                       |
| NC        | 2 x 470    | 90              | 2                       |
| ND        | 2 x 470    | 120             | 1                       |
| NH        | 2 x 470    | 180             | 3                       |
| PK        | 2 x 1000   | 240             | 2                       |
| RP        | 2 x 4700   | 330             | 2                       |

## Schematic



## Specifications

**Rated Voltage (max):** 130 VDC  
**Rated Current:** 10 to 200 amps  
**Test Voltage (two seconds):** 2500 VDC  
**Capacitor Class (EN133200):** Designed to meet Y4  
**Pulse Test (EN133200):** 2500V Peak  
**Insulation Resistance (within 1 minute):**

For C < 0.33μF, R > 15000MΩ  
 For C > 0.33μF, RC(MΩ\*μF) > 5000s

### Operating Ambient Temperature Range (@ rated current I<sub>R</sub>):

10 to 100 Amps: -40°C to +60°C  
 200 Amps: -40°C to +50°C

**Category Temperature Range:** -40°C to +85°C

**Climatic Category:** 40/85/21

**MTBF:** Typically >5 million hours

**Insulating Materials Flammability Rating:** UL 94V-0

### Typical insertion loss in dB:

Line-to-ground in 50 ohm circuit

| Filter ID | Frequency - MHz |      |     |     |    |     |     |      |
|-----------|-----------------|------|-----|-----|----|-----|-----|------|
|           | 0.01            | 0.03 | 0.1 | 0.3 | 1  | 10  | 100 | 1000 |
| CA        | -               | -    | 2   | 4   | 10 | 23  | 65  | 100  |
| HB        | 2               | 4    | 10  | 18  | 27 | 62  | 95  | 100  |
| HE        | 2               | 4    | 10  | 18  | 27 | 67  | 95  | 100  |
| NC        | 7               | 14   | 23  | 30  | 32 | 70  | 100 | 100  |
| ND        | 7               | 14   | 23  | 30  | 32 | 70  | 100 | 100  |
| NH        | 7               | 14   | 23  | 31  | 35 | 75  | 100 | 100  |
| PK        | 14              | 21   | 30  | 34  | 53 | 75  | 100 | 100  |
| RP        | 20              | 32   | 40  | 52  | 85 | 100 | 100 | 100  |

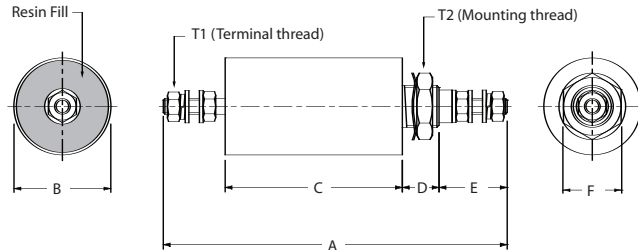
### Current derating above ambient:

10-100 Amp: For temperature,  $\theta I_{\theta} = I_R \sqrt{(85-\theta)/25}$   
 200 Amp: For temperature,  $\theta I_{\theta} = I_R \sqrt{(85-\theta)/35}$

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## Case Style



### T1 - Terminal Thread

| Part Number(s) | Thread | Torque (in-lb.) |
|----------------|--------|-----------------|
| 10FFD6-CA      | M3     | 4               |
| 16FFD6-CA/HE   | M4     | 11              |
| 32FFD6-CA/HE   |        |                 |
| 63FFD6-HB/NH   | M6     | 22              |
| 100FFD6-NC/PK  | M8     | 44              |
| 200FFD6-ND/RP  | M10    | 70              |

### T2 - Mounting Thread

| Part Number(s) | Thread    | Torque (in-lb.) |
|----------------|-----------|-----------------|
| 10FFD6-CA/HE   | M12 x 1   | 35              |
| 16FFD6-CA/HE   |           |                 |
| 32FFD6-CA/HE   |           |                 |
| 63FFD6-HB/NH   | M20 x 1   | 89              |
| 100FFD6-NC/PK  | M24 x 1   | 124             |
| 200FFD6-ND/RP  | M27 x 1.5 | 142             |

## Case Dimensions

|            | A<br>±.04    | B<br>±.02  | C<br>±.08   | D<br>±.04  | E<br>±.08  | F          |
|------------|--------------|------------|-------------|------------|------------|------------|
| Part No.   | 1            | 0.5        | 2           | 1          | 2          |            |
| 10FFD6-CA  | 3.54<br>90   | 0.79<br>20 | 1.93<br>49  | 0.47<br>12 | 0.63<br>16 | 0.67<br>17 |
| 16FFD6-CA  | 3.86         | 0.79       | 2.09        | 0.47       | 0.71       | 0.67       |
| 32FFD6-CA  | 98           | 20         | 53          | 12         | 18         | 17         |
| 63FFD6-HB  | 6.30<br>160  | 0.98<br>25 | 3.70<br>94  | 0.55<br>14 | 1.02<br>26 | 0.87<br>22 |
| 100FFD6-NC | 7.24<br>184  | 1.26<br>32 | 4.09<br>104 | 0.63<br>16 | 1.26<br>32 | 1.06<br>27 |
| 200FFD6-ND | 8.23<br>209  | 1.50<br>38 | 4.41<br>112 | 0.75<br>19 | 1.57<br>40 | 1.06<br>27 |
| 10FFD6-HE  | 5.12<br>130  | 0.79<br>20 | 3.50<br>89  | 0.47<br>12 | 0.63<br>16 | 0.67<br>17 |
| 16FFD6-HE  | 5.47         | 0.79       | 3.70        | 0.47       | 0.71       | 0.67       |
| 32FFD6-HE  | 139          | 20         | 94          | 12         | 18         | 17         |
| 63FFD6-NH  | 6.81<br>173  | 1.26<br>32 | 4.13<br>105 | 0.63<br>16 | 1.02<br>26 | 1.06<br>27 |
| 100FFD6-PK | 8.98<br>228  | 1.50<br>38 | 5.71<br>145 | 0.75<br>19 | 1.26<br>32 | 1.06<br>27 |
| 200FFD6-RP | 10.98<br>279 | 2.13<br>54 | 7.17<br>182 | 0.75<br>19 | 1.57<br>40 | 1.57<br>40 |

## Part Numbers

| Standard Performance | High Performance |
|----------------------|------------------|
| 10FFD6-CA            | 10FFD6-HE        |
| 16FFD6-CA            | 16FFD6-HE        |
| 32FFD6-CA            | 32FFD6-HE        |
| 63FFD6-HB            | 63FFD6-NH        |
| 100FFD6-NC           | 100FFD6-PK       |
| 200FFD6-ND           | 200FFD6-RP       |